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100 mph winds advisory a first, National Weather Service Tulsa says as surveyors review damage

Kirsten Lang
Jun 19, 2023

Pedestrians walking on S. Rockford Avenue are blocked by a tree that fell in overnight storms on Sunday in Tulsa.
Mike Simons, Tulsa World

Kirsten Lang

The severe thunderstorm warning early Sunday was unique for National Weather Service Tulsa.

EXHIBIT
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“We have never issued a warning for 100 mph winds,” Steve Piltz, meteorologist in charge at the Tulsa weather service office, said Monday. “That was a first.”

Downed trees and widely scattered debris are far too common a sight for Tulsa after what Mayor G.T. Bynum characterized as a **“wall of wind”** associated with the early-morning storm.

While the damage is a nuisance for residents and business owners, for storm surveyors at the National Weather Service office, these are key pieces of evidence for mapping out exactly what happened during the event.

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“We have roughly six meteorologists here on staff that will go out and survey storms after the fact,” said Piltz. “Usually it is the meteorologist that issued the warnings the day before that will head out the following day.”

Sunday morning brought a storm system classified as an MCS, or a mesoscale convective system. This is usually a complex of storms that becomes organized into a large thunderstorm that can span hundreds of miles and can bring very strong winds and heavy rain.

And in Sunday’s case those winds clocked in at 90-100 mph.

“The highest wind gust we recorded was a call from the Brookside area at 31st and Peoria,” Piltz said. “The caller said they recorded a 100 mph wind gust. And from an emergency manager in Cushing, a 98 mph wind gust was recorded.”

That morning the highest gust at the Tulsa International Airport was 76 mph.

“The reports we get from the ground are important for us and our ability to determine what exactly happened,” Piltz said. “On radar signatures we can see wind speeds at 3,000 to 4,000 feet above ground. And on Sunday they read nearly 120 mph. But we don’t know what speeds make it to the ground until we receive a report.”

Typically after a severe storm or reported tornado, surveyors will head out the following day to assess the damage. On Sunday though, the damage was so widespread NWS didn’t have enough resources to view every area.

“That’s when we rely on first responders, the media and storm spotters for help,” Piltz said. “We had **three confirmed tornadoes** to the northeast of Tulsa, but otherwise we officially wrote up Sunday as 80-100 mph winds.”

Tornadoes were northeast of Tulsa, with straight-line winds near 80 mph moving through the metro area.

For tornadoes, NWS surveyors are looking for damage that usually falls in a multidirectional pattern.

“For those really nasty, slow-moving storms, that is easy to spot,” Piltz said. “But sometimes when the tornado moves at a faster rate and catches up to the circulation speed, it can be a little trickier to spot.”

That is when meteorologists look for debris that has fallen more along what is called the convergence zone of the storm — in a south-to-southeast direction.

But when it comes to straight-lined winds, like on Sunday, it can look much different.

“Picture a garden hose splattering water on a driveway,” Piltz said. “It will go in all directions. That is what straight-lined winds can look like when they hit trees and send debris flying.”

Piltz said many of these big trees did fall to the east, as that is the direction the wind was blowing, but there may be some that look twisted or may have fallen in a slightly different direction.

“The twisted trees sometimes mean that the tree didn’t completely break off, and doesn’t necessarily mean it was a tornado,” Piltz added.

And for those trees that may have fallen to the south or southeast, Piltz says it may be from wind that has whipped around buildings.

Like with water in a stream that curves around a rock, wind will also move around buildings and homes and can cause a shift in the wind that may result in a tree downed in multiple directions.

“You really have to look at the bigger picture with these types of events,” Piltz said. “We use the information from those on the ground but also radar signatures, which are all key pieces of evidence. Not only do we look at what is damaged, but also what is not damaged.”